

P. O. Box 525 Sonora, Texas 76950

April 23, 2012

The Natural Gas STAR Program United States EPA (6207J) 1200 Pennsylvania Avenue, NW Washington, DC 20460

RE: Natural Gas STAR Program Annual Report - 2011 - Production Section

HighMount Exploration & Production, LLC, Sonora, TX

Ms. Honabarger:

Enclosed is a copy of the 2011 Annual Report for HighMount E & P, LLC. The report includes additional reductions taken in 2011.

If you have any questions please contact me at (325) 387-7314.

Sincerely,

Ervin Fisher, Jr.

**Environmental Specialist** 

cc: Danny Eaton, Manager, Region Production Operations

Ernest Johnson, Environmental & Safety Supervisor, HighMount E&P

## **Company Information**

# Annual Report 2011



Production Sector

Company Name:	HighMount E & P, LLC
Contact:	Danny Eaton
Title:	Manager, Region Production Operations
Address:	P.O. Box 618
City, State, Zip Code:	Sonora, TX 76950
Telephone:	(325) 387-7280
Fax:	(325) 387-3245
E-mail:	deaton@highmountep.com

BMP 1: Identify and replace high-bleed pneumatic devices
BMP 2: Install flash tank separators on glycol dehydrators
Partner Reported Opportunities (please specify):
Install plunger lifts, Install electric motors on pumpjacks, Install solar chemical pumps,
Install instrument air system, and eliminate unnecessary equipment.

**Annual Report Summary** 

Period covered by report:

From:

01/01/2011

To:

12/31/2011

Partner Signature Required:

I hereby certify the accuracy of the data contained in this report.

e accuracy of the data contained in this report.\_

4-20-12

Date

- Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.
- In addition to reporting methane emissions reductions, you are welcome to include other information about your company's participation in Natural Gas STAR in the "Additional Program Accomplishments" section of this form. The Natural Gas STAR Program will use any information entered in this section to recognize the efforts and accomplishments of outstanding partners.



OMB Control No. 2060-0328 Expires 07/31/2011

# **BMP 1: Identify and Replace High-Bleed Pneumatic Devices**

	Current	Year Activit	ties	
A. Facility/location identifier inf	ormation: Sonora Operat	tions		
B. Facility summary: Number of devices replaced: Percent of system now equipped low/no-bleed units:	C. Cost summary:  Estimated cost per replacement (including equipment and labor): \$\N/A /replacement			
D. Methane emissions reduction		multi-year re  If Multi-year: Partne automatic sunset da Partne sunset da	r will report this activity once ally calculate future emission te duration (BMP 1 has a su r will report this activity annute.	Multi-year e and let EPA n reductions based on nset period of 7 years). ually up to allowed
Please identify the basis for  Standard calculation	the emissions reduction		the space provided to sho using default	ow any calculations
Methane emissions reduction = [Ar devices being replaced (in Mcf/yr) replacement devices (in Mcf/yr)] x left Please specify your data so.  • Field measurement • Manufacturer specification	Annual emissions for the Number of devices replaced urce:		emissions reduction = 124 Mcf/yr x ase specify):	Number of devices replaced
F. Total value of gas saved:  Total value of gas saved = Methane e Gas value (in \$/Mcf) [if not known, us	missions reduction (in Mcf) x	G. How many devices do replace ne	you plan to TRD	devices
	Previous `	Years' Activ	rities	
Use the table below to report a	ny past activities implemen	ted, but <u>not prev</u>	iously reported to the Natura	l Gas STAR Program
Year # Devices Replaced Total Cost of Replacements (incl. equipment and labor) (\$) (Mcf/yr) (\$)				



OMB Control No. 2060-0328 Expires 07/31/2011

# **BMP 2: Install Flash Tank Separators on Glycol Dehydrators**

		Current Y	ear Activiti	es	
A. Facility	/location identifier informa	ition: Sonora Operation	s		
Number of installed:  Percent of	r summary: f flash tank separators  dehydrators in system with flash tank separators:	0 separators		ost per flash tank stallation (including	/installation
Please  Standa  Meth circum hours *If me not k of 3 s exch for el	ne emissions reduction: —  nidentify the basis for the entry of calculation  and emissions reduction per flash to alternate (in gal/hr) x Methane entry of operation (in hrs/yr) x 0.90] / 1,000  enthane entrainment rate is nown, use a default value sof/gal for energy ange pumps or 1 sof/gal ectric pumps  asse specify your data source: iteld measurement	emissions reduction e ank installation = [TEG eainment rate (in scf/gal)* x 100	or a multi-y  If Multi-yea  Partrautomal on suns years).  Partr sunset of stimate, using a multi-years.	ner will report this activity once tically calculate future emission et date duration (BMP 2 has a ner will report this activity annulate.  Ithe space provided to show using default  missions reduction = [Average gas the Mcf x 0.90] / 1,000	and let EPA n reductions based sunset period of 10 nally up to allowed any calculations
F. Total v	Manufacturer specifications  alue of gas saved: \$_  alue of gas saved= Methane emission  \$\mathcal{M}(Mcf) [If not known, use default of	ons reduction (in Mcf) x Gas		flash tank separators do o install next year? <u>TBD</u>	flash tank separators
tarao (r	. amay in rise marring and dordan o	Previous Y	ears' Activi	ties	
Use the	table below to report any pa	ast activities implemente	d, but <u>not previ</u> c	ously reported to the Natural G	as STAR Program
Year	# Flash Tank Separators Installed	Total Cost of Inc		Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)



OMB Control No. 2060-0328 Expires 07/31/2011

#### Partner Reported Opportunities (PROs)

For more details on PROs, visit epa.gov/gasstar/tools/recommended.html

	Current Yea	r Activiti	es	
A. Facility/location identifier information	ion: Sonora Operations			
B. Activity description: Please provid activity, please use a separate page for			r <u>each</u> activity reported. If re	oorting a DI&M
Please specify the technology or practice (choose from the list in the appendix or constall Plunger Lifts		activity:	scribe how your company implessed controls are the selected for this PRO based controls ater.	
C. Level of Implementation (check one)  Number of units installed: 146  Frequency of practice:	: units times/year	if Multi-year  If Multi-ye  Representations  automs  on sun	ar: tner will report this activity once atically calculate future emissic set date duration*. tner will report this activity ann	Multi-year e and let EPA n reductions based
E. Methane emissions reduction: 934.	40 Mcf		immary: Estimated cost of implactivity (including equipment and	
Please identify the basis for the en	nissions reduction estir	nate, using	the space provided to show	any calculations
☐ Actual field measurement		☐ Othe	r (please specify):	
Calculation using manufacturer speci	ifications/other source			
G. Total value of gas saved: \$ 364  Total value of gas saved = Methane emission x Gas value (in \$/Mcf) [If not known, use defa	 as reduction (in Mcf)	practic	it extent do you expect to imp e next year? TBD	plement this
	Previous Yea	rs' Activ	ities	
Use the table below to report any	past implementation of th	is PRO, but	not previously reported to Natu	ral Gas STAR
Year Frequency of Practice/Activity or # of Installations	Total Cost of Practice (incl. equipment and		Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

<sup>\*</sup>Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



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		Current Yea	r Activiti	es	
A. Facility	y/location identifier informat	ion: Sonora Operations			
B. Activity	y description: Please provid blease use a separate page f	e a separate PRO report or each location/facility	ting form for surveyed.	each activity reported. If rep	porting a DI&M
Please sp (choose fr Install electory)	recify the technology or practic from the list in the appendix or extric motors on Pump Jacks  of Implementation (check one)  Number of units installed: 5  Frequency of practice:	e that was implemented describe your own):	Please describe how your company implemented this activity:  If a location uses a pump jack and electricity is available.  D. Are emissions reductions a one-year reduction or a multi-year reduction?  One-year Multi-year  If Multi-year:  Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration*.  Partner will report this activity annually up to allowed sunset date.		
E. Metha	ne emissions reduction: 23	no Mcf	F. Cost su	mmary: Estimated cost of implactivity (including equipment and	
Pleas	e identify the basis for the e	missions reduction estir	nate, using	the space provided to show	any calculations
☐ Actual	field measurement		☐ Othe	r (please specify):	
Calcul	lation using manufacturer spec	ifications/other source			
Total v	value of gas saved: \$284 value of gas saved = Methane emissio value (in \$/Mcf) [If not known, use def	ns reduction (in Mcf)	practice	t extent do you expect to impenent year? FBD	plement this
		Previous Yea	rs' Activi	ities	
Us	e the table below to report any	past implementation of the	nis PRO, but	not previously reported to Natu	ıral Gas STAR
Year Frequency of Total Cost of Practi		Total Cost of Practice (incl. equipment and	Activity	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

<sup>\*</sup>Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



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## **Partner Reported Opportunities (PROs)**

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		Current Yea	r Activiti	es	
A. Facilit	ty/location identifier informati	on: Sonora Operations			
B. Activity,	ty description: Please provide please use a separate page fo	e a separate PRO report or each location/facility	ting form for surveyed.	r <u>each</u> activity reported. If re	porting a DI&M
(choose f	pecify the technology or practice from the list in the appendix or colors		activity:	scribe how your company imple is selected based on cost a	
C. Level	lar chemical pumps.  of Implementation (check one):  Number of units installed: 175  Frequency of practice:		D. Are emissions reductions a one-year reduction or a multi-year reduction?  One-year  Multi-year  If Multi-year:   Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration*.  Partner will report this activity annually up to allowed sunset date.		
E. Metha	nne emissions reduction: 175	<u>00</u> Mcf		mmary: Estimated cost of im/ /activity (including equipment and	
Pleas	e identify the basis for the en	nissions reduction estir	nate, using	the space provided to show	any calculations
☐ Actua	I field measurement		☐ Othe	r (please specify):	
Z Calcu	lation using manufacturer speci	fications/other source			
G. Total value of gas saved: \$\frac{68250}{2000}\$  Total value of gas saved = Methane emissions reduction (in Mcf)  x Gas value (in \$\frac{5}{100}\$ (in \$\frac{5}{100}\$) (in \$\fr		H. To what extent do you expect to implement this practice next year?  TBD			
		Previous Yea	rs' Activ	ities	
Us	se the table below to report any	past implementation of th	is PRO, but	not previously reported to Natu	ıral Gas STAR
Year Frequency of Total Cost of Practice Practice/Activity or # (incl. equipment and of Installations				Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)
				<del>                                     </del>	

<sup>\*</sup>Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



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		Current Yea	r Activiti	es	
A. Facility/location	on identifier informat	ion: Sonora Operations			
B. Activity descri activity, please u	ption: Please provid se a separate page l	le a separate PRO report for each location/facility	ing form for surveyed.	each activity reported. If re	porting a DI&M
Please specify the	technology or praction ist in the appendix or	e that was implemented	Please des activity: If a location	scribe how your company imple n has electrical service then it i an air compressor	
C. Level of Implementation (check one):  Number of units installed: 5 units Frequency of practice:  If Multi-year:  Partner will report this activity once and let EPA automatically calculate future emission reductions be on sunset date duration*.  D. Are emissions reductions a one-year reduction or multi-year reduction?  If Multi-year:  Partner will report this activity annually up to allow sunset date.					e and let EPA n reductions based
	sions reduction: 118		practice	mmary: Estimated cost of implement and the space provided to show the space	<i>d labor</i> ): <u>\$ 3698</u> 0/unit
Actual field me		missions reduction esti-		r (please specify):	arry carouration.
_		cifications/other source			
G. Total value of  Total value of gas  x Gas value (in \$1	gas saved: \$ 46 s saved = Methane emission (Mcf) [If not known, use details	ns reduction (in Mcf)		t extent do you expect to impe next year?	plement this
		Previous Yea	rs' Activ	ities	
Use the tab	ole below to report any	past implementation of the	is PRO, but	not previously reported to Natu	ıral Gas STAR
Prac	Frequency of ctice/Activity or # of Installations	Total Cost of Practice (incl. equipment and		Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

<sup>\*</sup>Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



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		Current Yea	r Activiti	ies	
A. Facility	/location identifier informa	tion:			
	description: Please providesse use a separate page			r <u>each</u> activity reported. If re	porting a DI&M
(choose from the list in the appendix or describe your own): activity:				scribe how your company impl ation of equipment is used w	
x N	of Implementation (check one lumber of units installed: 1/4 requency of practice: I- Dehydrator 4- Con	units times/year	D. Are emissions reductions a one-year reduction or a multi-year reduction?		
E. Methan	ne emissions reduction: 76	05 Mcf		immary: Estimated cost of im elactivity (including equipment and	
Please	identify the basis for the e	missions reduction estin	nate, using	the space provided to show	any calculations
Actual 1	field measurement		☐ Othe	r (please specify):	
☑ Calcula	ation using manufacturer spe	cifications/other source			
Total va	alue of gas saved: \$ 29  lue of gas saved = Methane emissicalue (in \$/Mcf) [If not known, use de	ons reduction (in Mcf)	practic	t extent do you expect to im e next year? TBD	plement this
		Previous Year	rs' Activ	ities	
Use	the table below to report any	past implementation of th	is PRO, but	not previously reported to Natu	ıral Gas STAR
Year	Frequency of Practice/Activity or # of Installations	Total Cost of Practice (incl. equipment and I			

<sup>\*</sup>Because the implementation of some technologies reduces emissions for multiple years, Natural Gas STAR allows certain activities to count towards a company's emission reductions beyond the initial year of implementation. Natural Gas STAR designates the maximum length of time that these reductions may accrue as "sunset dates." The Appendix lists these sunset dates. Companies can report the corresponding methane emission reductions each year up to the allowable sunset date. Or, companies may wish to report reductions only once for the implementation year, and have EPA automatically apply the sunset date and count those emissions for the allowable number of years.



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### **Additional Program Accomplishments**

The Natural Gas STAR Program will use any information entered here to recognize the efforts and achievements of outstanding partners.

Please include any additional information you would like to share about your company's participation in Natural Gas STAR. Examples may include:

- Activities to strengthen your program (e.g., training/education, innovative technologies or activities, pilot projects, employee incentive programs).
- Efforts to communicate your participation and successes (e.g., internal newsletters, press releases, company website).
- Participation in Natural Gas STAR program activities (e.g., contributions to case studies, presentation at annual workshop).

#### **Additional Accomplishments:**

No additional activities identified.



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### **Appendix**

#### Methane Emission Reduction Technologies & Practices— Production Sector

The list below describes a variety of methane emission reduction technologies that Natural Gas STAR partners in the production sector have implemented and reported to Natural Gas STAR. You may use this list as a guide when completing your annual report. Sunset dates (i.e., the length of time a technology or practice can continue to accrue emission reductions after implemented) are one year in duration unless otherwise noted in parentheses. An asterisk (\*) indicates that a technical document related to the technology or practice is available online at epa.gov/gasstar/tools/recommended.html.

#### Compressors/Engines

- Automate compressor systems operation to reduce venting
- Catalytic converter installation (10 years)
- Convert to low pressure compressor starters (10 years)
- Eliminate unnecessary equipment and/or systems\*
- Increase compression capacity to reduce venting/flaring
- Install automated air/fuel ratio controls (10 years)\*
- Install electric compressors (10 years)\*
- Install electric motors (10 years)
- Install electric motor starters (10 years)\*
- Install lean burn compressor (10 years)
- Lower compressor purge pressure for shutdown
- Perform gas recovery using slipstream (10 years)
- Redesign blowdown/alter ESD practices\*
- Reduce emissions when taking compressors offline\*
- Reduce gas venting with fewer compressor engine startups and improved engine ignition\*
- Replace compressor cylinder unloaders (10 years)\*
- Replace gas starters with air or nitrogen (10 years)\*
- Turbine fuel use optimization

#### **Dehydrators**

- Convert pneumatics to mechanical controls (10 years)\*
- Install condensers on glycol dehydrators (10 years)
- Install flash tank separators on glycol dehydrators (10 years)\*
- Reduce glycol circulation rates in dehydrators\*
- Replacing glycol dehydrators with desiccant dehydrators (10 years)\*
- Reroute dehydrator/tank vents to flare or station suction (10 years)\*
- Reroute glycol skimmer gas\*
- Shutdown glycol dehydrator stripping gas in winter
- Use rich glycol in glycol pumps

#### **Directed Inspection and Maintenance**

- DI&M at compressor stations\*
- DI&M: leak detection using IR camera/optical imaging\*

- DI&M: leak detection using lower emission threshold
- DI&M: survey and repair leaks\*

#### **Pipelines**

- Inject blowdown gas into low pressure mains or fuel gas system\*
- Pipeline replacement and repair
- Use hot taps for in-service pipeline connections\*
- Use pipeline pump-down techniques to lower gas line pressure before maintenance\*

#### Pneumatics/Controls

- Capture/use gas released from gas-operated pneumatic pumps
- Convert gas pneumatic controls to instrument air (10 years)\*
- Convert natural gas-driven chemical pumps (10 years)\*
- Convert pneumatics to mechanical controls (10 years)\*
- Identify and replace high-bleed pneumatic devices (7 years)\*
- Install controllers on gas-assisted methanol pump (10 years)
- Install/convert gas powered separators to solar powered separators (10 years)
- Install no bleed controllers (10 years)
- Install non-venting dump controllers (10 years)
- Reduce gas pressure on pneumatic devices
- Reduce venting from unlit pilot: install electronic safety devices (10 years)\*
- Replace bi-directional orifice meter with ultrasonic meters\*
- Replace chemical pumps with electronic flow controllers (10 years)
- Use add-on controls to reduce emissions from pneumatics (10 years)

#### Tanks

- Change out vent pallet (10 years)
- Convert water tank blanket from natural gas to CO<sub>2</sub> (10 years)\*
- Eliminate unnecessary equipment and/or systems\*

### **Appendix (continued)**

#### **Tanks**

- Install evactors (10 years)
- Install flash gas compressors (10 years)
- Install hydrocarbon liquid stabilizer (10 years)
- Install pressurized storage of condensate (10 years)\*
- Install vapor recovery units (VRUs) on storage tanks (10 years)\*
- Install VRUs on pipeline liquid/condensate tanks (10 years)
- Recover gas during condensate loading\*
- Reduce excess blanket gas blow-by to the atmosphere
- Replace leaking above-ground tanks (10 years)
- Route gas to compressor suction/blowcase vessel (10 years)
- Use protective tank coatings to reduce leaks (10 years)

#### **Valves**

- Heat tracing to prevent control valves from freezing open
- Install BASO® valves (10 years)\*
- Install plugs on valves and open ended lines (10 years)
- Test and repair pressure safety valves\*

#### Wells

- Artificial lift: gas lift (10 years)
- Artificial lift: install plunger lifts (10 years)\*
- Artificial lift: install pumpjacks or rod pumps on gas wells (10 years)\*
- Artificial lift: install smart lift automated systems on gas wells (10 years)\*
- Artificial lift: install velocity tubing strings (10 years)\*
- Artificial lift: pressure swabbing
- Artificial lift: use capillary strings (10 years)

- Artificial lift: use compression (10 years)
- Artificial lift: use pumping unit (10 years)
- Artificial lift: use to reduce blowdown in gas wells (10 years)\*
- Install automated shut-in cycle units to reduce well venting (10 years)
- Install flash tank separator on water gathering system (10 years)
- Install pumps for separators (10 years)
- Install snubbing unit at wellhead
- Install soap launcher/soap unit (10 years)
- Lower heater-treater temperature
- Optimize gas well unloading times
- Perform reduced emissions completions for hydraulically fractured natural gas wells\*
- Route casinghead gas to VRU or compressor (10 years)\*
- Use foaming agents to reduce blowdown frequency\*

#### Other

- Capture and use waste heat to reduce gas usage and emissions
- Convert natural gas-fired generator to solar power (10 years)
- Flare reduction program
- Improve system design/operation
- Install flares (10 years)\*
- Install pilotless burner controls (10 years)
- Install purge reducer on flare (10 years)
- Nitrogen rejection unit optimization\*
- Recover gas from separators
- Re-inject gas for enhanced oil recovery
- Re-inject gas into crude
- Replace aged heaters with new efficient gas fired heaters (10 years)

#### Mailing Information:

#### Standard Mail:

The Natural Gas STAR Program U.S. EPA (6207J)
1200 Pennsylvania Ave, NW Washington, DC 20460 U.S.A.

Express/Overnight Mail:
The Natural Gas STAR Program
U.S. EPA (6207J)
1310 L Street, NW
Washington, DC 20005
U.S.A.

The public reporting and recordkeeping burden for this collection of information is estimated to average 60 hours for each new response and 27 hours for subsequent responses. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.